

REMARKS

Claims 1-10 and 12 are pending in this application. None of the claims have been amended in this response. The Applicant respectfully requests reconsideration of the rejections of the claims in view of the following remarks.

Claims 1-10 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Nitta et al.* (U.S. Patent No. 4,401,851) in view of *Matsumoto et al.* (U.S. Patent No. 5,848,390). The Applicants respectfully traverse this rejection and request reconsideration for the following reasons.

Specifically, none of the prior art, alone or in combination, teaches "determining a performance index of the computer by a program for computer performance assessment; automatically specifying an input quantity for the voice recognition system using the performance index; and automatically adjusting accuracy of the voice recognition system to an obtained computing power of the computer using the input quantity" as recited in claim 1, and similarly recited in claim 12. Regarding *Nitta*, the reference merely teaches a conventional speech recognition apparatus that divides speech input data into phoneme data and individually recognizing the divided phoneme data (col. 1, lines 44-48). As the Office Action conceded, *Nitta* does not teach any of the features listed above.

The Office Action cited *Matsumoto* as allegedly teaching the aforementioned features. However, as argued previously, this assertion is incorrect. *Matsumoto* teaches a method of speech synthesis, whereas the present claims recite a method and apparatus utilizing speech recognition. Furthermore, *Matsumoto* teaches away from the present claims and from the *Nitta* reference, as the reference requires change to the number of quantization bits or the sampling frequency and thus the amount of supply of the speech data (col. 3, lines 29 to 35, and 42 to 48) in order to perform a speech synthesis processing suitable for any computer (col. 2, lines 64 to 65). These measures lead to significant acoustic differences in quality at the replay of the synthesized speech signal.

A speech recognition system as taught by *Nitta* subdivides a recorded speech signal into small sections and extracts feature vectors from every single section. Based on speech models assigned to these feature vectors the speech recognition system recognizes the spoken information (col. 2, line 65 to col. 3 line 13). More generally, a speech signal digitized with high

sampling frequency and high number of quantization bits is more detailed and therefore contains more information than a speech signal digitized with low sampling frequency and low number of quantization bits. Accordingly, the feature vectors of the speech signals are digitized in different ways depending on their configuration.

Matsumoto teaches away from *Nitta* in this regard, as different feature are vectors extracted from the speech signal and, as a consequence, for any special sampling frequency or number of quantization bits chosen, a special speech model would be required for each one of them. As this would lead to additional burdens on storage space, it runs contrary to the goal of running a speech recognition system on computers with low hardware performance

Regarding the Response to Arguments, the Office Action asserted that "*Matsumoto* is not teaching changing of the sampling rate of the hardware, but is determining how many samples to take out of the speech data" (page 6, lines 5+). While this statement is theoretically correct with respect to speech synthesis, the teaching in *Matsumoto* leads to significant differences with respect to speech recognition. "Downsampling" as taught in *Matsumoto* means either to read out only every third sample of the speech signal (e.g., 48kHz to 16kHz) or, in an unusual case, to read out every sample of 48kHz sampled speech signal with a frequency of 16kHz. Accordingly, information would be lost or degraded from the speech signal, which would significantly degrade or even nullify speech recognition capabilities.

A speech recognition system subdivides recorded speech signals into small sections and extracts feature vectors from every single section. Based on speech models assigned to these feature vectors, the speech recognition system recognizes the spoken information. A speech signal digitalized with high sampling frequency and high number of quantization bits is more detailed and therefore contains more information than a speech signal digitalized with low sampling frequency and low number of quantization bits. Thus, if the same speech signal is digitalized in different ways, the extracted feature vectors would also differ between each other depending on the sampling frequency of the respective speech signal.

As such, applying these principles to *Matsumoto* would lead to different feature vectors being extracted from the speech signal depending on the current sampling frequency (i.e. 48kHz or 16kHz). As a consequence, for any special sampling frequency or number of quantization bits chosen, a special speech model would be required for each one of them. As this would lead to

additional requirements in storage space, it does not solve the task of the invention to run a speech recognition system on computers with low hardware performance.

Furthermore, Applicants submit that there is simply no teaching, suggestion or motivation for one of ordinary skill in the art to combine the *Nitta* and *Matsumoto* references in the manner suggested in the Office Action. In making a determination that an invention is obvious, the Patent Office has the initial burden of establishing a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S. P.Q.2d 1955, 1956 (Fed. Cir. 1993). "If the examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992).

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986). (see MPEP 2142).

Further, the Federal Circuit has held that it is "impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992). "One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention" *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Moreover, the Federal Circuit has held that "obvious to try" is not the proper standard under 35 U.S.C. §103. *Ex parte Goldgaber*, 41 U.S.P.Q.2d 1172, 1177 (Fed. Cir. 1996). "An-obvious-to-try situation exists when a general disclosure may pique the scientist curiosity, such

that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result, or that the claim result would be obtained if certain directions were pursued.” *In re Eli Lilly and Co.*, 14 U.S.P.Q.2d 1741, 1743 (Fed. Cir. 1990).

When considering these teachings of *Nitta* as a whole, one of ordinary skill in the art would not perceive any suggestion that it would be desirable to incorporate a completely different methodology as that disclosed in *Matsumoto* in order to accomplish the object of *Nitta*. Again, merely because these references might be combinable, is not enough to establish obviousness when the desirability of the combination is lacking in this case. The method of *Nitta*, through a particular algorithm, seeks to more accurately reproduce speech data by dividing the input data into phoneme data and individually recognizing the divided phoneme data. Thus, it would not make sense to incorporate the speech generation system of *Matsumoto* with *Nitta*, which is wholly irrelevant to the speech recognition system of *Nitta*, thereby vitiating a purpose of *Nitta* (see *Nitta*, column 1, line 20 – col. 2, line 15). Furthermore, the Office Action fails to identify how the sampling rate adjustment of *Matsumoto* would be applied to the teaching in *Nitta*, as *Nitta* explicitly relies upon vowel segmentation correlation and phoneme recognition to perform its processing (col. 3, lines 19-64). Accordingly, the Applicant respectfully submits that a prima facie case has not been properly established in the rejection of claims 1 and 12 and that this rejection should be withdrawn.

In light of the above, Applicant respectfully submits that independent claims 1 and 12, as well as claims 2-10 which respectfully depend from claim 1, are both novel and non-obvious over the art of record.

In light of the foregoing, the Applicant submits that the present application is in condition for allowance and requests that a timely Notice of Allowance be issued in this case. It is further acknowledged that no fees are due in connection with this response at this time. However, if any fees are due in connection with this application as whole, the office is hereby authorized to deduct said fees from Deposit Account No. 021818. If such a deduction is made, please indicate the attorney docket number (112740-434) on the account statement.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY _____

Peter Zura

Reg. No. 48,196

Customer No.: 29177

Phone: (312) 807-4208

Dated: October 3, 2005